SP-001 and SP-002 Series

Omega Link Ultra Miniature Infrared Smart Probe

- **Ultra-miniature, non-contact Smart Temperature Probe**
- **Measured temperature range from -70 to 380ºC (-94 to 716ºF)**
- **6:1 or 10:1 optical field of view**
- **Software configurable through SYNC configuration software**
- **Software adjustable response time**
- **Built in data logging**
- **Modular M12 connection**

SP-001/SP-002: Introduction

The Omega Smart IR Temperature Probe is a miniature infrared sensor that measures the surface temperature of a solid or liquid without contact. It can measure non-metal surfaces between -70 to 380°C (-94 to 716°F). It also features a built-in sensor to measure the ambient temperature of the probe itself.

Materials including paper, thick plastics, rubber, food and organic materials, as well as painted metals and most dirty, rusty or oily surfaces, are measured accurately, safely and cleanly.

The Smart Probe is packaged into a rugged 12 mm OD x 67 mm long compact, stainless steel, IP67 (NEMA 6) housing - designed for heavy industrial use while taking up the least amount of space for easy installation.

Smart Core Enabled

Smart Core is integral to all Omega Link Smart Sensing Devices. In addition to allowing for modular integration to the Omega Link Ecosystem using any Omega Link Smart Interface, this powerful suite of advanced features enable plug-and-play connectivity, alarm and notifications, data logging, SYNC configuration, and storage of 10,000 data points and events.

Intuitive Configuration

Configure your Omega Link Smart Probe using our free SYNC configuration software. Configurable features include selective data extraction, measurement and device traceability, local alarms, and adaptive transmission rates.

Edge Control and Built in I/O

The Omega Link SP-001/SP-002 features 2 discrete I/O pins. These can be used for a myriad of applications including driving relays, physical alarms, or sensing dry contacts like door switches. The SP-001/SP-002 can also be utilized as an edge controller, with autonomous independent decision-making capabilities to generate local alarms or provide control outputs based on sensor inputs.

Long-Range Wireless Solution

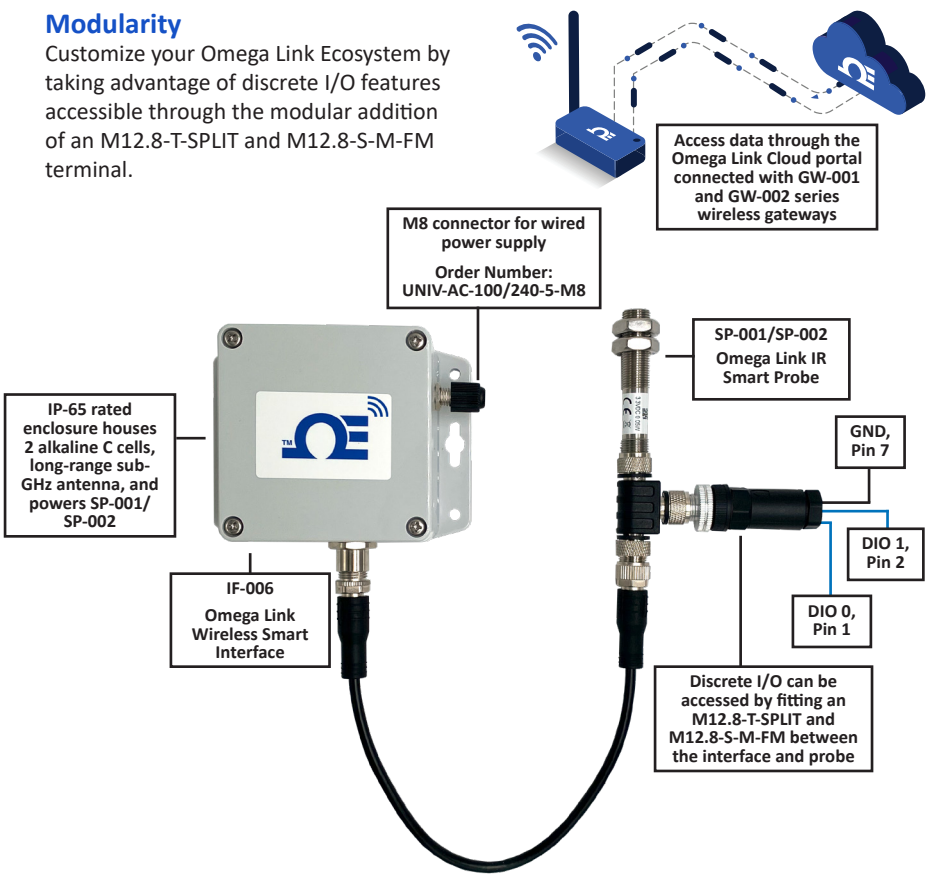
Pairing the SP-001/SP-002 with the IF-006 Series interface produces a self-contained, long-range, wireless solution. This setup can also be externally powered by adding the UNIV-AC100/240-M8 power adaptor.

**Note: IF-006 must be paired with an Omega Link wireless gateway*

Wireless Configuration for Smart Probe with Optional DIO

Modularity

Customize your Omega Link Ecosystem by taking advantage of discrete I/O features accessible through the modular addition of an M12.8-T-SPLIT and M12.8-S-M-FM terminal.



Specifications

Temperature Range: -70 to 380°C (-94 to 716°F)
Accuracy @ Ambient of 0 to 50°C (32 to 122°F): 1°C (1.8°F) or 1% of reading, whichever is greater
Accuracy Over Entire Ambient Operating Range: 4°C (7.2°F) or 3% of reading, whichever is greater
Repeatability: 1°C (1.8°F) or 1% of reading
Emissivity: 0.01 to 1.00, software adjustable
Response Time: 1 second
Spectral Response: 5.5 to 14 microns
Supply Power: 3.3 V_{DC}, 0.05 W max
Field of View: SP-001 is 6:1, SP-002 is 10:1

Environmental

Environmental Rating: NEMA 6 IP67
Operating Temperature: -40 to 85°C (-40 to 185°F) less than 95% RH, non-condensing
Vibration: 10 Gs from 10 Hz to 500 Hz

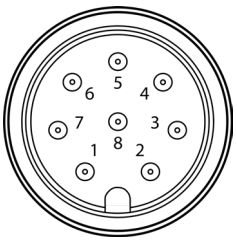
Mechanical

Construction: Stainless Steel
Sensor Length:
12 mm OD x 67 mm L (0.47" x 4.49")
Thread Mounting Dimensions:
12 mm OD x 33.5 mm L
(0.47" x 1.31")
Weight: 35 g (1.2 oz)

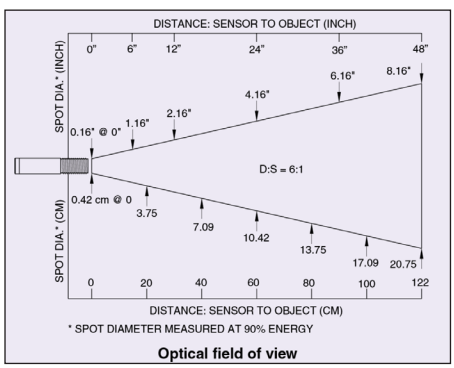
General

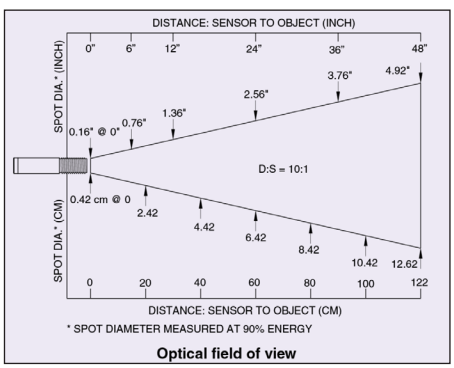
Agency Approvals: CE, UKCA
Configuration: Configurable via SYNC configuration software
Software: Compatible with OEG andSYNC configuration software

M12 8-Pin Male Connector



Pin	Name	Function
Pin 1	DIO 0	Discrete I/O Signal 0
Pin 2	INTR	Interrupt Signal
Pin 3	SCL	I2C Clock Signal
Pin 4	SDA	I2C Data Signal
Pin 5	Shield	Shield Ground
Pin 6	DIO 1	Discrete I/O Signal 1
Pin 7	GND	Power Ground
Pin 8	3.3VDD	Power Supply





Variants

The Smart IR Temperature Probe is available with two choices of optical field of view, either 6:1 or 10:1. Versions with 2 configurable digital I/O pins are also available. These can be configured as either Inputs or Outputs and can be used for a myriad of applications including driving relays, physical alarms, or sensing dry contacts like door switches. The probe can be configured to act as an edge controller, generating local alarm and control signals based on sensor inputs.

Model Number	FOV	Discrete I/O Pins	Description
SP-001-0	6:1	None	Smart Probe IR, 6:1 field of view
SP-001-1	6:1	2	Smart Probe IR, 6:1 field of view, with discrete I/O
SP-002-0	10:1	None	Smart Probe IR, 10:1 field of view
SP-002-1	10:1	2	Smart Probe IR, 10:1 field of view, with discrete I/O

Omega Link Smart Interface

Omega Link Smart Sensing devices require an Omega Link Smart Interface to operate and connect to your Omega Link Ecosystem. There are both wired and wireless options.

Model Number	Description
IF-001	Wired USB Smart Interface
IF-002	Wired RS485/Modbus Smart Interface
IF-006-1-NA	Wireless Sub GHz Wireless Interface -915 MHz
IF-006-1-EU	Wireless Sub GHz Wireless Interface -868 MHz

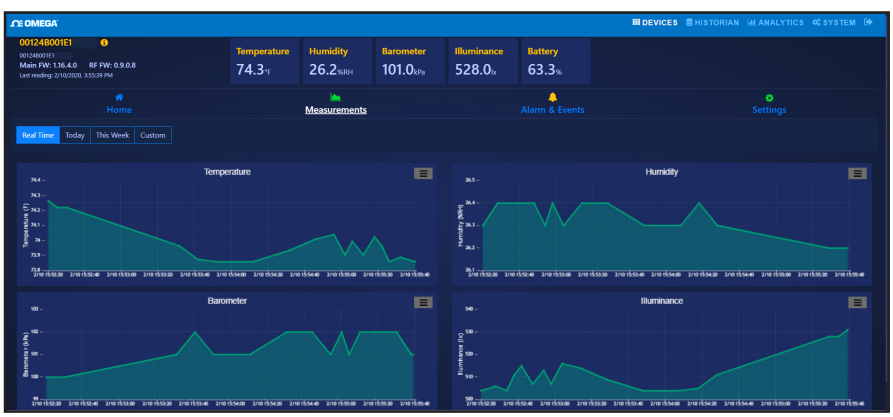
Omega Link Gateways

An Omega Link Wireless Gateway is ***required*** to connect your SP-001 or SP-002 to the Omega Link Cloud or Omega Enterprise Gateway.

Model Number	Description
GW-001-0	Wired IIoT Gateway Standard, Ethernet connectivity, Modbus RTU RS232/RS485 and Modbus TCP
GW-001-2-NA	Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Omega Link Smart Sensors- 915 MHz
GW-001-2-EU	Wireless IIoT Gateway Standard, Ethernet connectivity, connects up to 100 Omega Link Smart Sensors- 868 MHz
GW-001-3-NA	Wireless IIoT Gateway Pro, Ethernet connectivity, power over Ethernet, connects up to 100 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 2x USB ports- 915 MHz
GW-001-3-EU	Wireless IIoT Gateway Pro, Ethernet connectivity, power over Ethernet, connects up to 100 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 2x USB ports- 868 MHz
GW-002-1-LTE	Wireless LTE IIoT Gateway Pro connects up to 40 Omega Link Smart Sensors, Modbus RTU RS232/RS485 and Modbus TCP, 1x RJ45 port, 1x USB port - 915 MHz

Accessories

Model Number	Description
M12.8-T-SPLIT	Smart Probe M12-8 pin shielded T-Splitter - enables access to I/O pins
M12.8-S-M-FM	M12-8 pin Straight Plug Field install connector with screw terminals
DM12CAB-8-1-RA	1m (3.3') cable dual M12-8 connector, right angle terminator
DM12CAB-8-3-RA	3m (9.8') cable dual M12-8 connector, right angle terminator
DM12CAB-8-5-RA	5m (16.4') cable dual M12-8 connector, right angle terminator
DM12CAB-8-1	1m (3.3') cable dual M12-8 straight connector
DM12CAB-8-3	3m (9.8') cable dual M12-8 straight connector
DM12CAB-8-5	5m (16.4') cable dual M12-8 straight connector
SP-001-MB	Mounting bracket for SP-001 and SP-002

Your Data at a Glance with the Omega Link Cloud

The Omega Link Cloud consolidates and brings your data to you when you need it, wherever you are. The intuitive cloud interface allows you to monitor and store your data, set alarms and alerts, and provides insights on device activity. Visit the OMEGA website for more details.